17th EDINEB Conference

Crossing borders in Education and Work-based Learning

June 9 - 11, 2010

Thames Valley University, London, UK

Edited by:

Steve Halley, Chris Birch, Dirk Tempelaar, Mike McCuddy,
Núria Hérnandez Nanclares, Sandra Reeb-Gruber,
Wim Gijselaers, Bart Rienties, Ellen Nelissen

EDiNEB Network
P.O. Box 616,
6200 MD Maastricht, the Netherlands

Published in the Netherlands by FEBA ERD Press
Printed by Océ Business Services, Maastricht

ISBN: 978-90-813727-3-2
NUR: 841

Halley, S., Birch, C., Tempelaar, D., McCuddy, M., Hérnandez Nanclares, N., Reeb-Gruber, S., Gijselaers, W., Rienties, B., Nelissen, N. (2010). *Proceedings of the 17th EDINEB Conference: Crossing Borders in Education and Work-Based Learning*. Maastricht: FEBA ERD Press.

Final editing by Henny Dankers, Maike Gerken and Bas Giesbers.

Informal Learning in the Netherlands

Marjolein C.J. Caniëls and Paul A. Kirschner,
Open University of the Netherlands (OU), Heerlen, the Netherlands, e-mail: marjolein.caniels@ou.nl, paul.kirschner@ou.nl

Abstract: Lifelong learning (LLL) is a focal point of Dutch policy in relation to innovation, economic growth and social-cohesion. Prerequisite for LLL policy and implementation is knowledge of LLL participation of the working age population (18-64 years). Problem is that policy makers, government agencies and learning institutions only know the extent for formal LLL and not informal and non-formal LLL. This contribution represents the first large-scale study of participation in, barriers for and benefits of LLL in the Netherlands. Results show that in the Dutch labour force that younger workers make more use of LLL than older workers and those with higher levels of formal education participate more than those with lower levels. Perceived benefits include better job performance, keeping up with new knowledge, and better performance of new, job-related tasks Barriers include lack of time, inconvenient time and place of LLL-activities, cost of LLL-activities, and a lack of employer support.

Introduction

Lifelong learning (LLL) has long been taken for granted as being essential for all people and thus as something that will 'happen', the idea being that people themselves would make the effort to continue to learn. Where attention was paid to LLL it was usually through continuing education programmes at universities or private organisations specialized in developing and delivering courses. Noteworthy is that most initiatives saw LLL as formal learning (e.g., an extension of formal education). Only recently has LLL become a focal point of Dutch and European policy in relation to innovation, economic growth and social-cohesion, often in conjunction with the perceived need to transform production workers into knowledge workers (CEDEFOP, 2009). With this focus, there has also been a broadening of the scope from formal lifelong education to informal and non-formal lifelong learning. Emphasising the importance of making informal learning visible and valuable is increasingly seen by government bodies as a way to expand LLL. Informal learning takes place outside formal education and training institutions. It encompasses all learning activities that are not formally organised, including learning at work, in leisure time and at home. Informal learning in the workplace encompasses, for example, on-the-job learning, working alongside more experienced colleagues (i.e., apprenticeship), working as part of a team, and learning from customers, clients and suppliers (Cheetham & Chivers, 2000, 2001).

However, before managerial decisions and policy guidelines can be drawn up about how to use and value informal learning, we must know how much informal learning is actually being undertaken by individuals, and what possible barriers exist to participation. In several countries this challenge has been taken up, with as a notable example the study by Cheetham and Chivers, (2000; 2001) in the UK, where 80 practitioners from 20 professions were interviewed, and a questionnaire survey among 372 practitioners from six professions was undertaken. Another noteworthy example is the Work and Lifelong Learning (WALL) survey was carried out in Canada by the Centre for the Study of Education and Work at Ontario Institute for Studies in Education at the University of Toronto (OISE/UT) in collaboration with the Research Network on New Approaches to Lifelong Learning (NALL). The WALL survey was conducted in 1998 and 2004 among a large representative national sample of 9063 adult (18+) Canadians (Livingstone, 1999; Livingstone and Stowe, 2007).

While there is data in the Netherlands on participation in formal LLL (i.e., adult education courses), there has been little reliable research on the fuller extent of Dutch engagement in LLL (i.e., informal and non-formal learning), and whether this learning is being used to its fullest potential in paid workplaces and beyond. The aim of the research be reported on here is to probe the Dutch population's perception of key dimensions of paid and unpaid work and of their learning practices. We will address the following three basic questions:

1. What is the state of affairs of informal learning in the Netherlands? More specifically, what are the current forms, contents and outcomes of the array of informal learning activities of Dutch adults?
2. How have the outcomes of informal learning been used in the learner's paid and/or unpaid work or in other contexts, and were the outcomes valorised?
3. What factors hamper informal learning as perceived by Dutch adults? What barriers do they feel keep them from engaging in informal learning?

This contribution presents data from an on-line survey which yielded 520 qualified responses from Dutch citizens between 18 and 64 years old. The analysis is based on descriptive statistics and non-parametric tests. The evidence displays a rich diversity in the informal learning patterns across the Dutch population. The value of the underlying study lies in the better understanding of informal learning in the Netherlands.

Literature review

Lifelong learning (LLL) is "…all purposeful learning activity, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence" (Commission of the European Communities, 2000, p. 3). This concept is not new. LLL became a worldwide topic of discussion in the 1970s with the publication of a report by UNESCO which called for lifelong education as part of individual cultural and personal growth (Faure et al., 1972). The Organisation for Economic Cooperation and Development reconceptualised LLL by making it part of human capital theory (Field, 2001). The European Union gave LLL central prominence as part of the human capital requirements of the knowledge economy, and presented it as a key factor for the international competitiveness of European business and industry (Commission of the European Communities, 2000).

LLL, thus, is increasingly seen as central to the human capital requirements of our ever-developing knowledge economy and a key factor in maintaining the international competitiveness of Dutch and European business and industry. This is due to the fact that much valuable and non-trivial learning takes place outside formal programmes of instruction. Individuals learn and profit from experience in both formal educational settings (e.g., continuing education, in-house training) and informal settings (e.g., on-the-job/workplace learning and/or learning from media, museums). As such, LLL is an effect of conditions external and internal to individuals, and it has effects on an individual's professional and personal life.

Traditionally, LLL is divided into three categories, namely formal learning, non-formal learning, and informal learning (for an excellent discussion of this see Van Merriënboer, Kirschner, Paas, Sloep, & Caniels, 2008). Formal learning - as related to LLL - is traditionally an extension of formal schooling which Livingstone (1999) defines as an "age-graded, hierarchically organized, formally constituted system… [with] credentialing programs to certify one's knowledge competencies for starting one's adult lives" (p. 50). The Cedefop glossary (Tissot, 2000, 2004) notes that it consists of learning that occurs within an "organized and structured context (formal education, in-company training), and that is designed as learning" (Tissot, 2000, p. 22). Formal LLL courses and programs are most often offered by traditional (or new) educational or training institutions and when extended into the adult years are often called continuing education. As such, they constitute the universe of formal LLL (actually lifelong *education*).

Non-formal learning is not provided by an education or training institution and does not typically lead to formal certification (Commission of the European Communities, 2000). It consists of learning embedded in planned activities not always explicitly designated as learning, but which contain important learning elements. As such it is structured in terms of, often, personal learning objectives, learning time, or learning support and is intentional from the learner's point of view (Colardyn & Bjornavold, 2005). Somewhat confusing perhaps, Livingstone (1999) has called non-formal learning 'explicit informal learning' which he defines as learning experiences that take place outside of traditional institutions of learning, but involve the learner's own conscious identification of the activity as 'significant' learning, the most important criteria being "the retrospective recognition of both a new significant form of knowledge, understanding or skill acquired on your own initiative and also recognition of the process of acquisition" (p. 53). Non-formal learning (or explicit informal learning) is, thus, "any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions, or the courses or workshops offered by educational or social agencies…[and] undertaken on one's own, either individually or collectively, without either externally imposed criteria or the presence of an institutionally authorized instructor" (p. 3).

Finally, informal learning – according to the Commission of the European Communities (2000) - is learning that "results from daily life activities related to work, family or leisure. It is not structured (in terms of learning objectives, learning time and/or learning support). Typically, it does not lead to certification. Informal learning…is non-intentional (or incidental/random)" (Colardyn & Bjornavold, 2005, p. 22). It can, thus, be regarded as a tacit form of learning through everyday activities. Coombs (1985) defined informal learning as "the spontaneous, unstructured learning that goes on daily in the home and neighbourhood, behind the school and on the play field, in the workplace, marketplace, library and museum, and through the various mass media, informal learning is by far the most prevalent form of adult learning" (p. 92). Since informal and non-formal learning lie very close to each other and are often used interchangeably, we will use the term informal here.

In 2004 the Research Network on New Approaches to Lifelong Learning (NALL) carried out a telephone survey with a large representative national sample of the adult (18+) Canadian population (N=9,063) to provide quantitative detail on learning and work activities and their inter-relations. The survey confirmed that most adults' detectable individual and collective learning is comparable to an iceberg; only 10% visible at the surface, yet immense in its mostly submerged informal aspects (Livingstone, 1999). The survey assessed participation in four aspects of informal learning: employment related, community volunteer work related, household work related, and other general interest related. In each aspect, respondents were asked about informal learning activities on several specific themes. The questions used were developed to replicate the content of the Tough (1971) and Penland (1977) interview schedules, with appropriate revisions for changing circumstances (e.g., computer-based learning).

While there is much research and data on formal LLL in the Netherlands and outside (Wößmann & Schütz, 2006; Bassanini et al 2005), there is a dearth of reliable research and data on informal LLL and whether this learning is being used to its fullest potential in paid workplaces and beyond. The literature about LLL distinguishes several factors that might positively or negatively be related to informal LLL (see Bassanini et al (2005) and Desmedt et al 2006 for extensive overviews). Factors that are generally identified are:

- Personal traits: education level, age, family composition;
- Position on the labour market: working, without a job, inactive;
- Function characteristics: nature of the function, function level, part time job, temporary work;
- Company characteristics: size, orientation on technological and social innovations, HRM policy;
- Sectoral system: unions, pension rights, funds for on the job education;
- Policy aspects: subsidies for education; fiscal arrangements that promote education, social security, minimal duration of formal education, formal education infrastructure;
- Supply of adult education: content, form, place, costs;
- Macro-economic development: economic growth, labour developments; tightness labour market.

While there is little research on the characteristics of those engaged in informal learning, there are a few noteworthy general characteristics of lifelong learners. Personal characteristics such as age or educational background are expected to influence the engagement in informal learning (Berg & Chyung, 2008). However, the research on the relationship between age and informal learning shows inconsistent results. Tikkanen (2002), Livingstone and Stowe (2007) and Kremer (2005) show that less experienced, younger workers engage in more informal learning, while more experienced older workers view informal learning as less embedded in their work. Therefore older workers are less likely to engage in informal learning activities. In contrast, Livingstone (1999) and Berg and Chyung (2008) find that older people engage as much in informal learning as younger people. With regard to the association between the level of formal education and participation in informal learning activities, the results of previous studies are also inconclusive. Livingstone (2007) shows that with increasing educational attainment, the likelihood of participation in further education (formal as well as informal) increases. In contrast, Livingstone (2001) as well as Berg and Chyung (2008) find that the amount of time respondents spent on informal learning was about the same for all levels of education. The relationship between individuals' engagement in informal learning activities and having a paid or unpaid job is not often subject of study. Livingstone (2007) and Livingstone and Stowe (2007) report that the employed labour force is slightly more inclined to undertake informal learning activities than unpaid volunteer or household workers. Hence, the age of individuals, their education level and their position on the labour market are variables of interest in explaining the amount of time spend on informal learning. We posit the following propositions:

1. The amount of time spent on informal learning increases as individuals are more mature (i.e., older).
2. The amount of time spent on informal learning increases as individuals are more educated.
3. The amount of time spent on informal learning increases as individuals have jobs.

Method, sample and response

To determine how the amount of time individuals spend on informal learning varies with hteir characteristics and the characteristics of their position in the labour supply, we developed an on-line to be administered to an internet panel. This questionnaire was largely based on the WALL-studies questionnaire, but adapted to be used on-line (instead of as a telephone survey in the case of WALL). It was also more focused on informal learning and was expanded to include employability indicators (Van der Heijde & Van der Heijden, 2006).

The questionnaire was distributed by an independent research bureau employing online research panels representative of the Dutch population. Respondents receive a small reward for participation, by means of participation points that can be exchanged for gift certificates. The bureau made it possible to choose a sample based

on geographic and/or demographic characteristics. The target respondents were Dutch citizens between 18 and 65 years old. A decision was made to include no more than 10% freelancers and 10% unemployed.

To increase validity and reliability of the survey instrument and data collected the questionnaire was reviewed by two academic experts on informal learning and one practitioner in human resource management, resulting in several adaptations of the exact wording and layout of items and response options. The data were collected during autumn 2009. The final questionnaire was administered via e-mail with a link to the online survey to 800 Dutch citizens. Three e-mail invitations were returned as undeliverable. A total of 797 invitations were assumed to have reached the intended recipients. A total of 600 completed questionnaires were returned, of which 51 were incomplete. For each respondent the amount of time spent on the answering the questions was noted, leading to elimination of 29 questionnaires, because the respondents had filled it in too quickly to be taken seriously. A total of 520 usable responses remained for analysis, yielding an effective response rate 65.2%, which was seen as very satisfactory for a survey of this length and kind (Kumar et al., 1995; Malhotra & Grover, 1998). Complete anonymity was assured to reduce social desirability bias and to increase response rate.

One advantage of using an online questionnaire is that there are very little missing data. As foreseen, the most missing data related to time spent on informal learning per week (12.1%). This leaves us with 457 usable observations for all other questions.

The questionnaire contained demographic questions such as age, sex, current job position, work experience, and educational level. Respondents were also asked to report the benefits that they perceive to be attached to the informal learning they undertook. Indicators of employability, such as subjective career-success and occupational expertise were used for this. Subjective career-success was measured with the measurement scales of Gattiker and Larwood (1986) on a 5-point Likert scale. Occupational expertise (i.e., expertise needed to adequately perform the various tasks and responsibilities of a job) was measured as a construct variable, using 15 items from Van der Heijden et al. (2009) and Van der Heijde and Van der Heijden (2006) on a 6-point Likert scale. Furthermore, reasons for not engaging in informal learning were investigated.

Findings

Descriptive data on the dependent variable (i.e., hours per week spent on informal learning) and the independent variables, as well as other demographic characteristics of our sample are presented in Table 1. With respect to the dependent variable, people averaged 5.26 hours per week on informal learning. Of the respondents 59.8% was male and 40.4% female (see Table 1). Compared to the Dutch average of 54.3% male and 45.7% female in 2008 (Central Bureau of Statistics, 2010) our sample has slightly more males and less females. At the time of the survey 12.3% of the respondents held a doctoral or master degree as their highest degree earned, 24.5% a (professional) bachelor degree, 13.3% a high school degree (senior level), 40% a secondary vocational degree (in Dutch “MBO” or “MAVO/MULO”) and 10% a lower degree or no degree at all. Our sample is quite representative for the total Dutch labour force for which respectively the percentages are 11.6, 21.1, 8.1, 34.8, and 23.6. The average age of the respondents was 40 (Dutch average in the labour force is 39.9 years). Most respondents had average yearly wages of between 30,000 and 40,000 euro in 2008. For the total Dutch labour force the average yearly wages are 33,400 euro per year (Central Bureau of Statistics, 2010).

Table 1: Descriptives for dependent and independent variables

Continuous scale	***N***	**Min**	**Max**	***M***	***SD***
Age	520	18	64	40	11.65
Hours per week in paid job	450	0	60	34	9
Hours per week spent on informal learning	457	0	80	5.26	8.43
# jobs in past 5 years	450	1	5	2	1
Family members	520	1	7	3	1
Interval scale					
Occupational expertise (# items = 15; α = 0.924)	457	1	6	4.61	0.55
Subjective career success (# items = 7; α = 0.729)	457	1	5	3.36	0.52
Ordinal scale		**#Categ.**	**Min**	**Max**	**Mode**
Education level (highest diploma)	520	15	None	PhD	Secondary
Yearly wages (euros)	334	12	0	90,000-100,000	30,000 - 40,000
Dichotomous scale		**Yes**	**No**		
Male	520	59.8%	40.4%		
Employed	520	87.9%	12.1%		
Job dynamics in past 5 years					
First job acquired	520	13.7%	86.3%		
Promotion	520	17.3%	82.7%		
Changed jobs	520	37.9%	62.1%		
Became unemployed	520	8.7%	91.3%		
Full-time → part time / vice versa	520	10.6%	89.4%		
Maternity leave	520	7.5%	92.5%		
None of the above changes	520	60.4%	39.6%		

Our sample indicates that in the age groups 30 to 39 and 50 to 59 the least number of hours is spent on informal learning. When we look at gender differences, we see that the average amount of time spent per week on informal learning activities is high for males that are at the beginning of their professional career (i.e., between 20 and 29 years of age) well as males in the final stage of their professional career (i.e., older than 60 years of age) (see Figure 1). Females are most engaged in informal learning when they are between 40 and 49 years.

When a bivariate correlation was calculated between age and informal learning, a significant negative correlation was found (Pearson's r = -.117, p = .006), indicating that younger people spend more time on informal learning than more older people.

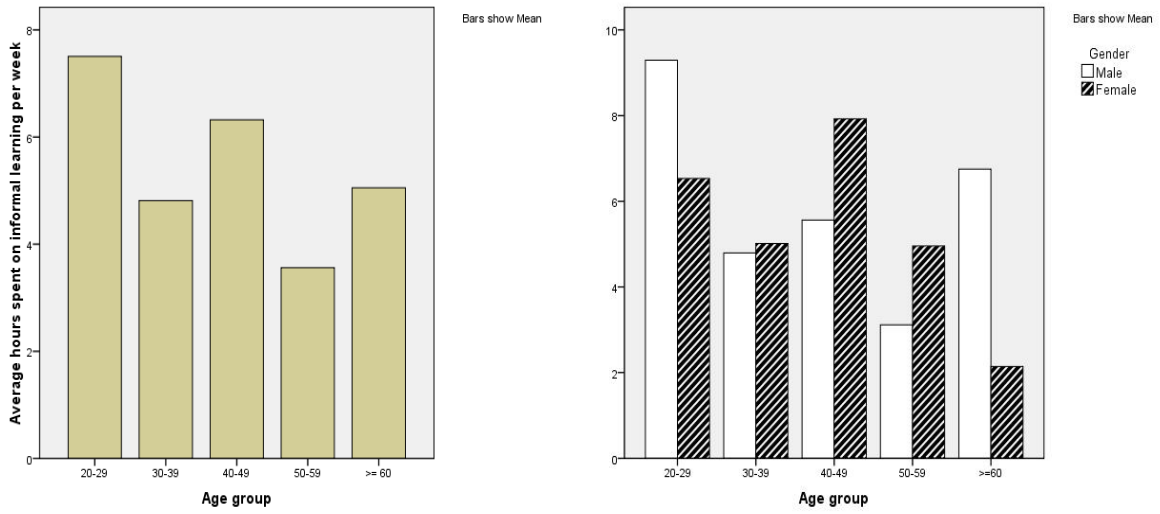

Figure 1. Time spent on informal learning per age group

Table 2 shows the average number of hours per week spent on informal learning by education level. Individuals with a middle level secondary education are most engaged in informal learning activities (52%). A second large group are those with a university bachelor degree (25%). When we look at the percetage of people with a certain education level engaged in informal learning, we see that 95% of those with a master degree spend time on informal learning activities, while only 63% of those with lower level secondary education spend time on informal learning activities. Table 2 also shows that in 73% of the cases people spend between 1 and 10 hours per week on informal learning. Only 3% spends more than 21 hours per week.

Table 2: Average number of hours spent on informal learning by education level

Informal learning (in hours)	0		1-10		11-20		>20		Total within table		% informal learning by education level
Education level	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	
Lower level secondary ed.	15	3%	22	5%	1	0%	2	0%	40	9%	63%
Secondary ed (middle level) and high school degree	49	11%	169	37%	13	2%	8	2%	239	52%	79%
Bachelor degree	10	2%	94	21%	6	1%	5	1%	115	25%	91%
Master degree	3	1%	50	11%	10	2%	0	0%	63	14%	95%
Total	77	17%	335	73%	30	7%	15	3%	457	100%	

Table 3 shows the distribution of employment hours. Of the male respondents, 82% work 30-40 hours per week. For women the largest group (36%) works 20-29 hours per week. Table 4 shows the distribution of time spent on informal learning activities. By far the largest category those who work between 30 and 40 hours and are engaged in informal learning between 1-10 hours. Bivariate correlation between hours worked per week and informal learning, yielded a nonsignificant and almost non existing relationship (Pearson's r = -.005, p = .454).

Table 3: Average paid employment hours worked per week, continuously employed Dutch Labour Force

hours/week	male		female		total	
1-19	7	3%	25	14%	32	7%
20-29	13	5%	65	36%	78	17%
30-39	105	39%	56	31%	161	36%
40	115	43%	32	18%	147	33%
41-49	18	7%	2	1%	20	4%
≥50	11	4%	1	1%	12	3%
Total	269		181		450	

Table 4: Informal learning vs average paid hours worked per week, continuously employed Dutch Labour Force

hours/week	Informal learning									
	0		1-10		11-20		>21		Total	
1-19	7	2%	23	5%	2	0%	0	0%	32	7%
20-29	17	4%	54	12%	4	1%	3	1%	78	17%
30-39	21	5%	121	26%	11	2%	8	2%	161	35%
40	23	5%	112	25%	10	2%	2	0%	147	32%
41-49	2	0%	14	3%	2	0%	2	0%	20	4%
≥50	5	1%	7	2%	0	0%	0	0%	12	3%
Total	77	17%	335	73%	30	7%	15	3%	457	

Little research has been conducted on the perceived value of informal learning. Table 5 shows what respondents indicated as results of their informal learning. It shows how the outcomes of informal learning have been used in paid and/or unpaid work or in other contexts, and whether they were valorised. The majority of respondents indicate that informal learning helps them do their job better and keep up with new knowledge in their area of expertise. With respect to valorisation, 17.7% indicates that informal leaning is needed to keep their job, 13.7% it helps increase income and 11.6% that it increases chances for promotion.

Career success (Van der Heijde and Van der Heijden, 2006) and self reported occupational expertise (Van der Heijden et al., 2009) can indicate a person's perceived career potential. We expect a positive relation between informal learning and career potential. However, a bivariate correlation between informal learning and perceived career success yielded a negative nonsignificant correlation (Pearson's $r = -.019$, $p = .344$), indicating that informal learning is not perceived as being related to career success. This is also the case for informal learning and self reported occupational expertise (Pearson's $r = -.028$, $p = .273$), indicating that people who spend much time on informal learning activities do not feel that they have much expertise. A possible reason is that may be precisely the group that feel that they have a lot to learn, and are not yet successful in their job, are the ones that engage most in informal learning activities.

Table 5: Benefits attached to informal learning (N=380)

Informal learning helps me to …	*%*	*Informal learning helps me to …*	*%*
perform my job better	80.3	acquire knowledge about job health and safety aspects	17.6
keep up with new knowledge	72.9	acquire knowledge about labour conditions and rights of employees	15.5
perform new tasks in my job better	56.8	increase my income	13.7
build computer skills	44.7	increase my knowledge of foreign languages	11.8
develop teamwork, problem solving or communicative skills	41.8	get a promotion	11.6
work with new machines	32.4	further develop financial management skills	11.3
further develop planning- or management skills	25.8	find a job	6.1
acquire insights into power structures at work	19.5	keep my own business	2.9
keep my job	17.9	Other	7.4

The question remains why individuals choose not to engage in informal learning. What factors hamper informal learning in the perception of Dutch adults? In this study we investigated intrinsic and extrinsic factors perceived as learning barriers (McCracken, 2005). Intrinsic factors are attributed to the individual's perception, motivation and emotions. Extrinsic factors are associated with a person's external environment, categorised as organisational culture, management development culture and physical resource factors. Table 6 shows the barriers respondents

perceived as keeping them from engaging in informal learning. The main reasons are: lack of time (61.2%), inconvenient time and place of informal learning activities (20.9%), and cost (19.4%). These three reasons are categorized by McCracken (2005) as extrinsic factors that have to do with physical resource pressures. Apparently, individuals perceive the demands on themselves as very high. This causes time and resource pressures to impact their ability to devote time to informal learning activities. Typical intrinsic factors such as fear of failure and "don't need more education" were only reported by 2.2% of the respondents as hampering informal learning.

Table 6: Factors hampering informal learning (N=134)

Factor	*%*	*Factor*	*%*
Lack of time	61.2	Activities take place in an unfriendly environment	3.0
Inconvenient time and place of activities	20.9	Fear of failure	2.2
Activities are too expensive	19.4	No need for more education	2.2
Lack of employer support	10.4	Undertaking learning activities is boring	0.7
Family responsibilities	6.0	Lack of availability of child care	0
Health problems	3.7	Other	11.9

Discussion and conclusion

The results of this study give insight in the state of affairs of informal learning in the Dutch labour force. The findings are consistent with Tikkanen (2002) and Kremer (2005), in that younger people are more engaged in informal learning than older, more experienced people. This may be viewed as surprising, as it might seem logical that older people would be more interested in personal development not necessarily directly related to their work. Livingstone (1999) shows in this respect that older individuals tend to undertake more individual (rather than social) forms of informal learning. However, our results might be due to the tendency Tikkanen noted, that young people see working as learning. They feel that they need to gain experience in their job, and a large part of acquiring this experience induces informal learning activities, such as working alongside others, tackling new and challenging tasks (Eraut, 2004), mentoring, coaching and networking (Cheetham & Chivers 2001; Marsink & Watkins, 1990).

Other personal characteristics often proposed as influencing informal learning are educational level and position in the labour market. Our research confirms that those with higher levels of formal education are more likely to participate (Brunello, 2001; Desmedt et al., 2006; Livingstone & Stowe, 2007). This can be explained by their recognising that every form of additional education gives a cumulative advantage to those with more education, while those with less education perceive additional education as bestowing fewer advantages (Wößmann & Schütz, 2006). Moreover, informal learning might even carry social and psychological risks to lower educated individuals, since they might lose connection to their social class (Desmedt et al.). With regard to the relationship between hours worked per week and informal learning, there was no significant relationship. This supports Livingstone and Stowe who report that those who work fewer hours are no less reliant on job-related informal learning than full-timers. They only find weak associations between hours of paid work and participation in informal learning, and the relationship only holds for one particular time frame.

With regard to perceived benefits of time spent on informal learning activities, we did not find a positive association with perceived career success or self reported occupational expertise. The cause for this might lie in the time lag between (1) engaging in informal learning activities, (2) actual learning taking place, and (3) experiencing career benefits from learning. It is likely that individuals who are very engaged in informal learning, do so simply because they want to improve their career success and occupational expertise. Hence, they feel that these indicators are not yet at a satisfactory level.

Barriers to participation in informal learning activities in our sample predominantly stemmed from extrinsic factors, such as lack of time, inconvenience of time and place of LLL-activities, the cost of LLL-activities and the lack of employer support. These results bring a special conundrum with them. If the activities include informal learning – that is learning from daily life activities related to work, family or leisure which is not structured (in terms of learning objectives, learning time and/or learning support), then how is it possible that there is not enough time, that the time and place is inconvenient and that the costs are too high? The simple answer to this is that the general population / labour force still does not recognize what informal LLL is and still sees LLL as being something akin to lifelong or continuing education; that is something you do at a certain time and place. This is compounded by the fact that they respondents feel that they can valorise their informal LLL at their place of employment.

Though this research presents nothing less than a giant step in understanding the magnitude of participation of the Dutch labour force in LLL and the perceptions that they have related to informal LLL in the Netherlands, the major limitation is that it is purely descriptive and correlational. As such it provides a basis for policy, but also for further research that is more causal in nature. This will, in turn, lead to better decisions as to how LLL van be implemented and used for innovation, economic growth and social-cohesion, in conjunction with the transformation of Dutch production workers into knowledge workers.

References

Bassanini A., Booth A., Brunello G., De Paola M., & Leuven E. (2005). *Workplace training in Europe*. IZA Discussion Paper No. 1640.

Berg, S., & Chyung, S. (2008). Factors that influence informal learning in the workplace. *Journal of Workplace Learning*, 20(4), 229-244

Brunello G. (2001). *On the complementarity between education and training in Europe*, IZA Discussion Paper No. 309.

CEDEFOP (2009), *European guidelines for validating non-formal and informal learning*, Office for official publications of the European Communities, Luxembourg.

Cheetham, G., & Chivers, G. (2000). A new look at competent professional practice. *Journal of European Industrial Training*, 24, 374-83.

Cheetham, G., & Chivers, G. (2001). How professionals learn in practice! what the empirical research found. *Journal of European Industrial Training*, 25, 270-92.

Commission of the European Communities (2000). *Commission staff working paper. A memorandum on lifelong learning*. Brussels, Belgium: European Commission.

Desmedt, E., & Groenez, S. , & Van den Broeck, G. (2006). *Onderzoek naar de systeemkenmerken die de participatie aan levenslang leren in de EU-15 beïnvloeden* [Research on system characteristics that influence participation in lifelong learning in the EU-15]. Leuven: Katholieke Universiteit Leuven.

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, 26, 247-273.

Faure, E., Herrera, F., Kaddoura, A.., Lopes, H., Petrovsky, A., Rahnema, M., et al. (1972). *Learning to be. The world of education today and tomorrow.* Paris, France: UNESCO.

Field, J. (2001). Lifelong education. *International Journal of Lifelong Education, 20*(1), 3-15.

Gattiker, U., & Larwood, L. (1986). Subjective career success: A study of managers and support personnel. *Journal of Business and Psychology*, 1, 78–94.

Kremer, A. (2005). *Predictors of participation in formal and informal workplace learning: demographic, situational, motivational, and deterrent factors*. Doctoral dissertation, George Mason University, Fairfax, VA.

Livingstone, D. W. (1999). Exploring the icebergs of adult learning: Findings of the first Canadian survey of informal learning practices. *Canadian Journal for the Study of Adult Education*, 13(2), 49-72.

Livingstone, D. W. (2007). Re-exploring the icebergs of adult learning: Comparative findings of the 1998 and 2004 Canadian surveys of formal and informal learning practices. *The Canadian Journal for the Study of Adult Education*, 20(2), 1-24.

Livingstone, D. W., & Stowe, S. (2007). Work time and learning activities of the continuously employed: A longitudinal analysis, 1998-2004. *Journal of Workplace Learning*, 19(1), 17-31.

Marsick, V., & Watkins, K. (1990). *Informal and incidental learning in the workplace*, New York: Routledge.

McCracken, M. (2005). Towards a typology of managerial barriers to learning. *Journal of Management Development*, 24, 559–75.

Penland, P. (1977). *Self-planned learning in America*. Pittsburgh: University of Pittsburgh.

Tikkanen, T. (2002). Learning at work in technology intensive environments. *Journal of Workplace Learning*, 14(3), 89-97.

Tissot, P. (2000). Glossary on identification, assessment and recognition of qualifications and competences and transparency and transferability of qualifications. In J. Bjornavold (Ed.), *Making learning visible: Identification, assessment and recognition of non-formal learning in Europe*. Luxembourg: Office for Official Publications of the European Communities.

Tissot, P. (2004). *Terminology of vocational training policy: A multilingual glossary for an enlarged Europe.* Luxembourg: Office for Official Publications of the European Communities.

Tough, A. (1971). *The adult's learning projects*. Toronto: OISE Press.

Van der Heijde C. M., & Van der Heijden, B. I. J. M. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management*, 45, 449–476.

Van der Heijden, B. I. J. M., Boon, J., Van der Klink, M., & Meijs, E. (2009). Employability enhancement through formal and informal learning: An empirical study among Dutch non-academic university staff members. *International Journal of Training and Development*, 13(1), 19-37.

Van Merriënboer, J. J. G., Kirschner, P. A., Paas, F., Sloep, P. B., & Caniëls, M. C. J. (2009). Towards an integrated approach for research on lifelong learning. *Educational Technology Magazine, 49*(3), 3-15.

Wößmann L., & Schütz G. (2006). *Efficiency and equity in European education and training systems, Analytical Report for the European Commission*. European Network on Economics of Education (EENEE) for the Communication and Staff Working Paper by the European Commission. [http://ec.europa.eu/education/policies/2010/back_gen_en.html] Accessed on 20 May 2010.